

# Optimization of Freight Procurement

## A case of JKIA

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Abstract  Freight and logistics industries have seen a significant growth over the last decade, and this growth requires better and more optimized solutions.  The present study aimed at examining strategies that could be used in the optimization of the procurement at Jomo Kenyatta International Airport. The study aimed at presenting an effective framework for addressing the challenges in procurement and optimizing the performance of the department. This was hoped to result in an effective performance and operation of the business structures. The study incorporated both primary and secondary research in collecting crucial data on the optimization of the freight procurement at Jomo Kenyatta International Airport.  According to the results of the study, corruption, lack of competence, bureaucracy, lack of business ethics and wastages were the main challenges in the freight procurement at the airport.  Thus, it can be concluded that firms' competitiveness in the market today is dependent on the performance of their procurement departments.		
Keywords  Freight Procurement. Logistics Management. Airline Procurement. Optimization of Freight.		
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## 1 INTRODUCTION

### 1.1. Background

Freight procurement, also known as logistics procurement, is the orderly coordination of all parts of the acquisition process including offers, value arrangements, guaranteeing legitimate amounts and details, transportation and conveyance (Song and Regan 2005, 114.).

The objective is to manage the materials, administrations or items at the most ideal cost that addresses the issues and time imperatives of the association. In the most recent decade Caplice and Sheffi (2003, 109.) noticed that numerous organizations, particularly those with assembling operations, advanced direct materials sourcing from a regulatory capacity to a vital obtainment process.

Expensive and medium size shippers regularly have obtainment work force and, yet, may need coordination crosswise over delivery areas (Caplice & Sheffi, 2003, 107). Smaller organizations have incline shipping offices and they are regularly centered on moving items with little time and vitality staying to arrange contracts and break down cargo spending.

Cargo and logistics organizations should manage various issues in the years ahead. For instance, as exchange courses turn out to be more focused and as cargo rates fall, the industry's customary dealing power with its shippers—volume—will be tested (Sheffi, 2004, 17.). One vital procedure to counter this test is to utilize asset report quality in order to attain the required level of accuracy that optimizes on the performance of organizations.

Another key to development and productivity will be the capacity to investigate the clients' needs and after that react rapidly with separated and propelled logistics arrangements (Song and Regan 2001, 76.). That will require better IT devices to enhance inner procedure productivity and to create investigations whose outcome is a

more profound comprehension of the clients' commercial ventures and business forms (Lim, Rodrigues and Xu 2008, 56).

The impact on logistics and SCM from globalization has been significant over the past several decades. For example, the global container trade has increased on average five percent a year over the last twenty years. (Grant 2012, 179.). This significant growth requires, and will in the future require, more and better optimized solutions.

## **1.2. Purpose of the Study**

The procurement departments in a firm plays an important role in the competitiveness of firms. The department ensures that the supply is effectively managed so as to promote the corporate performance. This reduces the instances of deficiency in the operations that may prevent the effective performance of the departments.

Optimization of the procurement strategies influences the overall performance of corporations. Optimization of the supply structures and the processes that connect the customers demand and the organizational mandate using the tiers for supply chain presents a reliable structure that improves performance across the countries for effective delivery of services. The development of an effective well-balanced prudence is normally applied in the supply chain that stimulates the decision making process for the consumers.

The optimization goes beyond the normal organizational supply nexus to a critical role that it plays in the development of its effective operation in the organization. In addition, it promotes the effective performance and operation of the supply and logistic departments in the procurement processes and procedures. Developing an effective procurement strategy that optimizes the company's operations is crucial in ensuring a sustainable competitive advantage and performance. These measures take into account the new models of procurement that move away from the traditional strategies to more effective and efficient systems that promote the performance of the procurement network in the corporations through an *extended enterprise model* that caters for the effective operation of the firms' activities (Sandholm, et al 2009, 13).

Optimization of the procurement strategies was defined by the Massachusetts Institute of Technology (MIT) based on the definition presented by Crainic and Rousseau (1986, 89). From the definition, optimization of the procurement or logistic strategies is a process that integrates the procuring approaches, production and presents the end-products and services to the customers effectively and efficiently. Optimization in procurement involves the assessment of the sub-suppliers, internal operations, retail customers, and the end users. This study is, therefore, important as it evaluates the possible measures that can improve the performance and operation of the departments.

### **1.3. Aim and Objectives**

The present study will aim at examining the measures or strategies that can be used in the optimization of the procurement process of freight. The study considered the case of Jomo Kenyatta International Airport, which is the main airport in Kenya.

The airport region is gaining high volumes of customers because it is a gate to the East African region. In order to achieve its objectives, this study integrated an effective mechanism that was hoped to promote the effective performance and operation of the airline industry through the optimization of their procurement strategies.

The following objectives were used in guiding the author on the optimization of the procurement or logistic issues at Jomo Kenyatta International Airport (JKIA). The researcher will have an opportunity to integrate theoretical and empirical evidence to measures that will be aimed at improving the efficiency of procurement.

Ergun, Kuyzu and Savelsbergh (2007, 15-16) state that previous studies have explained that some of the major indicators of challenges in the procurement process that are to be considered are, for example, improving decision making, consolidating shipments, minimizing the number of partners (carriers), making use of Internet-based transportation apps, managing internal resources, etc. The thesis concentrated on measures reducing freight-related costs, maximizing capacity and making the process more transparent with as few uncertainties as possible. In addition, the research

addressed evidence concerning the measures of improving and maximizing the profits through proper management of the freight related costs. To achieve this aim, the following objectives guided the research in the results collection, analysis, discussion, conclusion and recommendations. The following objectives were considered in the study.

1. Analysis of the global trends in freight optimization.
2. Exploring the theoretical and empirical evidence on challenges facing logistics procurement, with special attention to the airline industry.
3. Suggesting possible approaches that could address the challenges discovered.
4. Devising measures to monitor and evaluate the performance of the recommended measures.

#### **1.4. Research Questions**

The goals of the thesis were achieved by addressing the following questions:

- What are the current global freight optimization trends?
- What are the challenges that JKIA experiences in the optimization of their procurement process?
- How could the airline improve its performance and efficiency?

#### **1.5. Structure of the Study**

The second chapter presents an overview of the Jomo Kenyatta International Airport by describing the traffic history and the current developments in that require the optimization of operations and procurement. This chapter presents information regarding the current requirements in terms of logistics of the Airport.

The third chapter explained the existing literature on the optimization of procurement or logistic operations in corporations. The study later narrows down to airport



management strategies and their roles in facilitating efficient procurement operations. The literature review also presents the theoretical framework that guides towards understanding the optimization of procurement.

The fourth chapter presents the method used in the collection of primary data and in the analysis. This forms a crucial part of the study as it influences the quality, reliability and validity of the data collected. It also explores the method of data analysis.

The fifth chapter presents the results of the study and the last chapter comprises the discussion where the author reviews the findings, existing literature and theoretical framework in order to predict the future implications of the study and the suggestions for future studies.

## 2 OVERVIEW OF THE STUDY

### **2.1. History of Jomo Kenyatta International Airport Operations**

The Jomo Kenyatta International Airport previously known as the Embakasi Airport was constructed in the 1950s when Kenya was under the British rule. The country gained its independence in 1963. The airport was opened in early 1958 when it served the first generation of Boeing 707/DC8 types of aircraft. Moreover, the first decade of Kenya's independence was a time of drastic increase in the commercial, cultural, political and social development of the country (Irindu & Rhoades 2006, 32-33).

The passenger traffic in the airport increased from 0.25 million annually to over 1.5 million in 1960. The government noted that the increasing number of cargo and passengers would not be accommodated by the Embakasi Airport. According to Hermann and Potgieter (2016, 18), this led to the Government of Kenya commissioning detailed reports from Sir Alexander Gibb & Partners in 1968. The company conducted an air traffic assessment and evaluation in order to forecast the state of Embakasi Airport in terms of traffic of passengers and aircrafts.

A feasibility study was used in the preparation of the master plan for the future development of a new airport in the Capital of Kenya, Nairobi. There was an agreement that was signed in 1972 that involved the World Bank and the Government of Kenya regarding the construction of the new airport. The Government of Kenya was granted a loan of US\$ 29 million that could be used in the financing of the construction of a modern airport that would meet the future traffic demands in the country.

Later, Embakasi Airport was relocated 18kms from the Capital City Nairobi, where the Athi plains are located. This plan was effective in ensuring that the needs of the passengers were met. Hermann and Potgieter (2016, 7) noted that a new airport was commissioned for construction in the same area with the existing runway being retained. This expansion was crucial to the performance and operation of the airport. There was a consultative meeting between the Kenyan Government and the Joint Airline Consultative Committee that agreed on the construction of five different passenger terminals.

The Embakasi Airport was closed on March 14, 1978 for both aircraft and passengers when during the same day, the Jomo Kenyatta International Airport took over its operations. The airport has experienced growth and development and achieved the current status of the biggest airport in the East and Central Africa region. In addition, it is considered a focal point for the most of the major aviation activity that takes place in the region.

## **2.2. Current Status of Passenger and Aircraft Traffic Demands**

From the data regarding May 2014, Hermann and Potgieter (2016, 10) add that there was a positive variation in terms of traffic movement, especially after the airport began increasing its customer volume through short overhaul flights. In addition, the airport has increased the number of client services with the number of passengers being estimated at 503,236, cargo totaling at 24,758 tons and aircraft movements having the total of 8,306 per year from the data in 2014 civil aviation. Considering the

values for 2013 and 2014, there was a positive variation expressing an increasing number of visitors that the airport was supporting. The number of passengers received in 2013 amounted to 483,805, which represented a 4% increase in the number of customers from 2013 to 2014. In addition, the cargo that was transported through the airport had increased by 20.1% in 2014 in comparison to the 20,612 tonnes that was transported in 2013. The increase in the aircraft traffic from 2013 and 2014 explains that the airport is likely to experience higher volume of consumes in future as identified from the diagram below.

**Table 1. Cargo and passenger movement at JKIA 2013-2014**

	<b>2013</b>	<b>2014</b>	<b>Change in %</b>	<b>2013</b>	<b>2014</b>	<b>Change in %</b>
<b>Passenger Movement</b>	438,805	503,236	4.0%	5,576,749	5,503,660	-1,3%
<b>Cargo (Kgs)</b>	20,611,983.0	24,757,928.0	20.1%	239,110,487.0	242,095,234.0	1,2%
<b>Aircraft Movement</b>	7,358	8,306	12,9%	83,259	86,636	4.1%

### 3 LITERATURE REVIEW

#### **3.1. Introduction**

This section presents an analysis of previous research and the theoretical framework. The section presents a holistic view on the challenges facing the industry today in relation to freight procurement.

In addition, it addresses the measures that have been taken in the past to improve the performance and operation of the airport. Based on the analysis, the section presents an overview of the performance and operation of the procurement measures that can enhance the operations. The theoretical models help in explaining the current state of performance of the airport and procurement and measures that could be taken to improve the performance.

#### **3.2. Previous Studies on Optimization of Freight Procurement**

A study conducted by the Harvard Business School (1996) examined the strategies used in the management process that improves the performance of a business company. The study used a proactive approach in contrasting the reactive and simplistic measures that would influence purchasing and supply management in organizations. The study suggested that an important measure would involve the recognition of the boundaries that require the consumer preference.

The identification of the effective measures in influencing the operational tools in the decision making require the formulation of effective boundaries that promote the competence and performance of the procurement process. The study concluded that in order to promote the profitability of a firm, it is important to identify the relationships

that affect the utilization of the assets in the maximization of the productivity of the business operations.

Most of the previous studies focused on the preparation of the bid through a procedural approach that involves the use of generic purchasing strategies for the transportation applications that are aimed at the number of carriers and the maximization of their capacity. Some of these studies include (Abshire & Premeaux, 1991; Crum & Allen, 1990; Foster & Strasser, 1991; Bardi, Bagchi & Raghu-nathan, 1989). The studies revealed that even when the strategies used in the procurement process have specific qualities, they normally influence the transportation services such as the duration of transport and the reliability.

The procurement strategies should evaluate whether the carrier as a whole or in part should be used for passenger or cargo transport. The current strategies applied in the procurement processes normally ignore the specific aspects of transportation. In this regard the bid preparation is faced with challenges, and identification of the requirements is crucial for the performance of the department. Over the recent years, there has been an improvement in the academic literature, and the bid execution practices address the measures that can be taken to improve the performance of the procurement processes in the business. The development of the Internet has significantly reduced the cost of the connectivity among the businesses that interact in the execution of the procurement practices.

The new technology and internet integration in the business environment influences the performance by affecting the way the quotes and bidding are made in the companies. One major development is the increased frequency of the bidding events. The challenges are still in the bidding process and the execution of the bids that affect the performance and overall operation in the procurement departments. In addition, it is noted that through the commercial services that are available to improve the execution of the process, there is possibility of providing an effective mechanism for the bidding.

Most of the researchers have recommended a more comprehensive approach to enhancing the procurement process by considering the measures in the procurement.

The research conducted by Klemperer (1999) indicates that the current approach to procurement considers the auction theory that is crucial in the integration of the practice. Another study conducted by De Vries and Vohra (2002) performed a comprehensive review of the applications of theoretical frameworks in the analysis of the measures for the optimization-based auctions that take into account the FCC spectrum. It was identified that majority of the procurement measures are not effective, hence the need to optimize the procurement strategies.

There has additionally been expanded enthusiasm about applying enhanced approaches specifically to the transportation field. Moore, Warmke, and Gorban (1991) portray the definition of an optimization-based offering approach for Reynolds Metals. Tragically, the model was not fully implemented because of the restricted PC capacities at the time.

Ledyard et al. (2000, 50) describe their utilization of a "consolidated quality" closeout for securing transportation administrations for the Sears Logistics Services in the mid-1990s. They connected a restricted enhancement-based methodology and claimed to have lessened aggregate spending of the obtained administrations by 13% or \$165 million. Schneider Logistics presented their Combined Value Auction (CVA) module in June 2002.

The developers of the optimization strategies evaluates the ways through which the procurement process would be more efficient and effective (Caplice 1996) and in applying advancement based procedures to more than 50 organizations for the acquisition of truck-burden, not exactly truckload, sea, rail, between modular, and air transportation administrations. These procurement efforts included more than \$8 billion in transportation benefits and reported combined savings to the shippers in abundance of \$500 million.

### **3.3. Transportation Carrier Economics**

Transportation frameworks can be approximately named being either "coordinate" or "solidified." Truck-load (TL) bearers, working over sporadic courses and moving from inception to destination with no middle of the road stops for burden combination, are an immediate mode. United transporters, for example, not exactly truckload (LTL) and bundle conveyance bearers, require the utilization of terminals and planned courses to gather littler shipments and combine them into bigger burdens.

This paper concentrates on the financial aspects of direct transportation administrations. Most of the expenses for direct modes can be isolated into two exercises: line-pull development and association with a take after on burden. Line-pull development expenses are fundamentally variable with separation (fuel, tires, and administrator's wages), are surely knew, and are generally controllable by the bearer.

The expenses connected with interfacing with take after on burdens comprise of deadheading (development of a void truck from its ebb and flow position to the area of another load) and abide (time the driver needs to stay at an area holding up for a take after on burden to be recognized). Stay time can likewise incorporate the expense of sitting tight to load and emptying at an office. The expense of making an association is never known with sureness by a transporter because of short tendering lead times and the general spatial and fleeting variability of shipper interest.

This vulnerability in association costs makes path interdependencies where the expense of pulling on one path is influenced by alternate paths that a transporter is serving. A backhaul path is the clearest sample of this interdependency.

The expense to pull from A to B will be lower if the truck has a high likelihood of outbound burdens from B or inbound burdens to A. This is an illustration of economies of extension –the expense to serve one path depends not on the volume on that path (which would be a sample of economies of scale) yet on whether another path is served.

Economies of extension are available if the aggregate expense of a solitary transporter to serve a given arrangement of paths is lower than the expense of different bearers serving these same paths. Logistic operations display critical economies of degree,

particularly on paths with large amounts of dependable and reliable movement volume. The failure to precisely assess the association expenses can likewise prompt supporting – further expanding a bearer's cost.

### **3.4. Current Requirements for Freight Procurement**

The airports are experiencing an increasing number of passengers and cargo resulting to increased demand, which influences the supply chain management practices in the procurement and contract processing. Procurement has been a major challenge for the airports considering the increasing number of passengers requiring their services. In addition, the research indicates that Jomo Kenyatta International Airport has been cited as one serving an emerging market hence increasing number of passengers and cargos to use the airport.

Theoretical analysis is crucial in understanding the challenges and solution facing freight procurement and its optimization.

Procurement challenges that are common in the freight procurement should be addressed effectively to optimize the performance of the freight procurement process. The crucial reason is that foundation is a very perplexing and redid question and along these lines, financial as well as political, social and natural contemplations would be required from quite a while for the airport.

Keeping in mind the end goal to convey open framework administrations to residents or citizens, there are a progression of choices that legislatures need to make. At every stage, there are a few imperative financial hypotheses that could manage government basic leadership.

This paper intends to give a base bundle of hypothetical recommendations to answer such arrangement addresses by checking on agent commitments. Having said that, some critical elements as a general rule, for example, political and institutional



conditions, may not be considered keeping in mind the end goal to concentrate on hypothetical examination.

Additionally, there are obviously numerous other hypothetical advancements. For further points of interest, including hypothetical suspicions and conclusions, see the referred to unique papers. An arrangement of administrative choices on foundation acquisition might be fourfold.

To begin with, governments should choose whether to create base products and administrations in-house or get them all things considered, which alludes to any element other than government workers. This is a conventional question of open financial aspects.

The essential question is: Under what conditions ought to governments pick the choice of contracting-out? This can be tended to by customary motivator hypothesis and inadequate contract hypothesis created since Hart (1995; 2003) and Hart et al. (1997). For extensive studies, see Dimitri et al. (2006) and Janssen (2004). The theoretical approach that views public procurement as a problem of bundling and unbundling multiple distinct tasks could reply to these questions (e.g., Hart, 2003; Bennett and Iossa, 2005).

While bundling everything under state ownership means nationalization of infrastructure, unbundling some of the tasks can represent some forms of private sector participation in infrastructure, as in public private partnerships (PPP). The decisions and theoretical models Third, when the scope of public tasks being delegated to outside contractors is determined, governments need to make a decision on how to select the best private partner.

This is addressed largely by auction theory, which is normally discussed under the totally different setting from (incomplete) contract theory. The selection of agents or contractors raises a series of questions.

The economic literature on public procurement has made tremendous progress in recent decades. Harris (2003, 14) for an account of recent trends in developing countries. The major theoretical frameworks associated with the procurement process

comprise of the incentive theory, ex post adjustment, contract theory, Auction theory, bundling model and the incentive contract.

After the initiation of an agreement, there is a high probability or hazard that either contractual worker or the one requiring acquirement practices would look for ex post modification of the agreement for reasons unknown. There are possibly various unforeseeable and in this manner non-contractible issues out in the open obtainment, particularly in long haul complex foundation extends.

A specific number of studies have examined the relationship between ex stake contracting and ex post change (e.g., Bajari and Tedelis, 2001; Guasch et al., 2007, 2008). Quite, if adaptable contractual courses of action are favored instead of solid motivator gets, the administration basic leadership may come back to the main question on whether to contract out open framework to the private division since it suggests a few challenges in contracting out.

### **3.5. Procurement Challenges Related to Procurement Ethics**

This is the acquisition of knowledge, skills and competencies of a job holder so as to improve one's capability, capacity and performance (Meggion and Boydoll 2002, 113). In purchasing ethics, training is more crucial to any member per taking in purchasing and supplies functions because it brings a sense of guidance on the individual in recognizing what is wrong and right especially in procedures that are complex and pertains to legal issues.

According to lenders et al (2006, 46), the purchasing function in most private and public institutions is emerging as a strategic business unit that can contribute to the ultimate goals of organizations that include cost advantages and efficiency that can be accrued throughout the purchasing cycle without jeopardizing quality of products or services produced.

Lysons (1998, 19) states that ethical training sessions for purchasing staff can serve such purpose as; reinforcing the organization's ethical codes and policies, remind staff that top management expects participants to consider ethical issues when making purchasing decisions and clarify what is and what is not acceptable, what members of staff should do if they discover a superior, colleague or subordinate acting contrary to the company's ethical code, penalties of unethical behavior, fostering ethical standards when dealing with suppliers among others.

In Kenya, the public procurement oversight Authority (PPOA) which is a body created through the PPDA to oversee the operations and procedures in public entities, is tasked with training stakeholders in the purchasing and supplies professions who include both employees in public entities and suppliers of those entities. These training include purchasing ethics for all stakeholders through organized forums across the country and also through using the internet where publications are posted so for interested person to have access to them.

Lysons (1998, 27) indicates that, policy is defined as an instrument for strategy implementation and a body of principle laid down to direct an enterprise towards its objectives and guides the executive or management in making decisions. Policies may be considered in three crucial strengths namely; Corporate policies, which reflect the mission of the undertaking and provide guideline in evaluating strategy, Functional policies, relating to activities of major business unit like the purchasing function and operational policies, which are mainly concerned with day to day decision making process which may include payment of suppliers. These levels of policies are integrated in nature, where functional policies express the objectives of the corporate policies in their functional units and the same applies to functional policies in regard to operational policies.

Therefore public institution should have in place an institution wide ethical policy that trickles down to the purchasing function to have ethical purchasing policies. The public procurement policy in Kenya provide for allowance of open competition for procurement without discrimination in a transparent, fair, and accountable manner to ensure achievement of value for money in all procurement, (general procurement manual ,2009). This is the ethical purchasing policy that should guide a purchasing unit

to form strategies to ensure that ethics standards are set in performing purchasing functions and should also be the basis of the principles or code of ethics in a purchasing unit/ department.

A code of ethics is a motivation instruments that gives a common framework and rules on how employees do their jobs within an organizational vision. An organizational wide code of ethics should address what the company does, who the organization interacts, where it is applicable and the ethical boundaries not to be crossed by employees (Chuck Williams 2007, 201.).It should mainly highlight risk areas that affect the organizations operations and manage the risk through the code of conduct.

It should also spell out reporting mechanism and disciplinary procedures for breaches of the code. Communication is paramount when a code of ethics is to be used, in that, each and every employee should be trained so as to apply them when carrying out organizational duties. It should be also be reviewed constantly to incorporate issues that are emerging in terms of ethics and nobody should be immune to the provision of the code of the ethics including the management of the organization.

In today`s litigious world, actions of just one unethical employee can result in exposure of any public organization and protection from such actions is an organization-wide code of conduct that trickle down to functional units of the organization. Thus in thus light a purchasing function should have in place a code of conduct that is aligned with the organizations ethical policy and code of conduct.

### **3.6. Ethical standards observed by suppliers**

The General Procurement Manual (2009, 65) Indicates forms of malpractices originating from the suppliers, they may include supplier offering kickback to procurement managers to secure contract or provide inside information on building process, supplier offers gifts to procurement manager or inspection manager to overlook inferior goods or service, suppliers submits false information for work done or employee work hours, suppliers re-submitting an invoice already cancelled,

conclusion with customers employee toward bad to supplier company amongst many others forms of corrupt practices.

The general procurement manual(2009, 67) indicates that bidders shall refrain from corrupt or fraudulent practices which may include offering inducements or not stating correct facts in order to influence a procurement process. Moreover, collusion of supplier and any staff of the organization individual in the bidding is categorically forbidden and the procuring entity should notify any law enforcement agency or PPOA.

To uphold that suppliers will not engage in corrupt practice or fraudulent activities, they are to declare in writing of their intent not to collude, not to engage in corrupt practices, a supplier not being debarred from bidding in public tenders, are not organization's officials or employees, were not organizations employees and will cooperate with PPOA if there is an inspection or audit into their records to determine if there was breach of the law.

This declaration represents the suppliers' commitment to be ethical in the procurement process in accordance to the law. Declaration is however, not enough to ensure that the suppliers 'play by the book', there should be more control to ensure that the gaping holes that suppliers may exploit to be unethical in order to awarded the wanted contrast. Towards this end, there is need to have a closer control and supplier management (resist tools 2010, 71.)

They advocate for suppliers to produce a code of ethics to illustrate that they do not condone unethical practices, ensure that suppliers personnel is receiving training in corruption law and consequences of being corrupt and ethical, monitoring supplier's anti-corruption efforts through questionnaires and monitor supplier performance through the duration of the contract, especially signs of corrupt behavior. Lysons (1996, 101) indicates being responsible toward the environment is one of the social responsibilities of an organization.

Thus suppliers are required to offer products and services to the procuring entity with due regard to standards set in terms of environment. Areas of environment concern include efficient use of raw materials in manufacturing process, especially timber and

minerals, reduction of pollution and waste that minimizes human living organization populated by the environment and ways to save energy from sources as wood, fossil fuels, water, sunlight, wind and cranium.

### **Green Procurement**

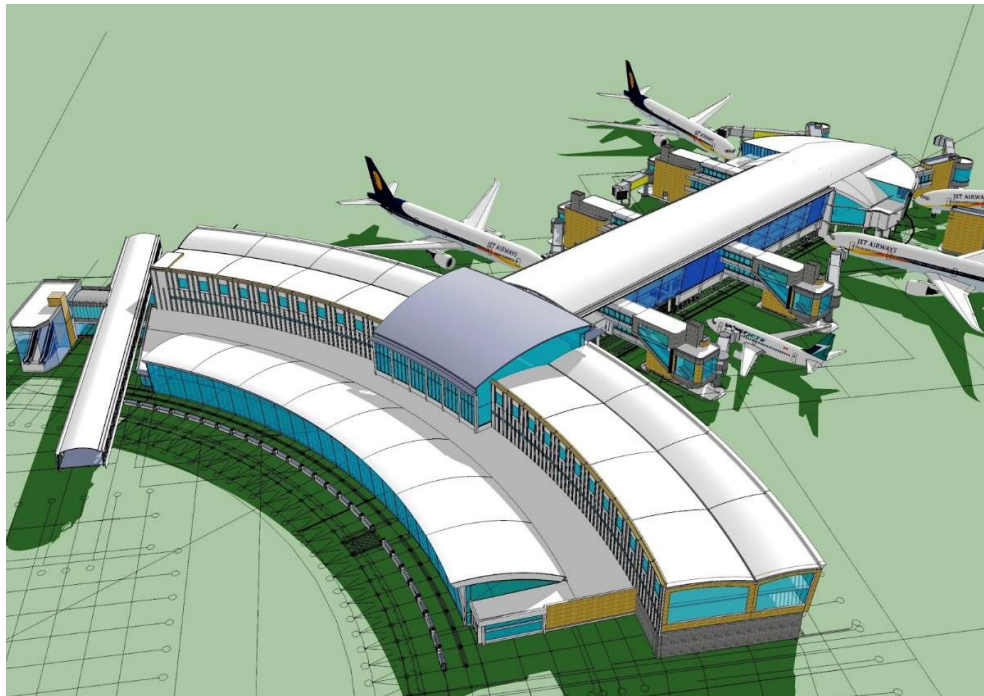
Green procurement is environmentally responsible purchasing. This mainly involves procurement of goods and goods and services that minimize environmental impacts. This means considering the costs of securing raw materials, manufacturing, transporting, storing, handling, using and disposing of products procured in terms of the environment.

It also bases policy on the promotion of the four 'R' strategy which include re-think the requirement to reduce environmental impact, reduce material consumption, recycles materials and reduce energy consumption (UNDP tools 2010, 34.).

Environmental considerations should be included in ethical standards that should be made by suppliers and the relevant body nationality tasked with outer sight of the environment should be in corporate in the procurement processes to see that the suppliers meet the environmental standards.

JKIA is renaming each of the Terminals to keep in line with International standards and expectations. The new terminals are focusing on green operations. The president unveiled the plan of the new terminals in 2014. As seen on the figure below

**Figure 1. Planned Green Terminals at JKIA**



The green terminals are just some of the few visions the company has underline. The company has a plan to turn most operations to be environmental friendly. This is due to new legislations being drafted and keeping up with green business strategies.

## 4 METHODOLOGY

### 4.1. Introduction

The methodology chapter presents how data for this research was collected and how it was analyzed. The methodology chapter also presents the methods of data collection for both primary and secondary research process.

The chapter presents the detailed description of the research process taking into account the research process, which the research found crucial in data collection and analysis. It is aimed at examining in details the impact that optimization of freight procurement has on the performance of JKIA. It will rely on the research question that will guide the research in conducting this research to ensure that the objectives are met successfully.

Both primary and secondary data collection methods will be utilized in this research to help in relating the relevant theory and literature into the new research being undertaken. The geographical regions that the research aims to cover will be Kenya, where optimization of freight procurement at East Africa's biggest airport, Jomo Kenyatta International Airport.

To ensure that the research is identified with ethical guidelines, it is important to identify that human participation in this research will make the research to acquire the ethical approval where the participants' consent forms will be filled before undertaking the research.

## **4.2. Research Philosophy**

The research philosophy influences the way the research is conducted and how the data is analyzed in the research process. It is derived from the epistemology that concerns an investigation on the known truth. It is different from doxology, which describes on what is believed as true.

There is a research philosophy that is identified during the research process. The research philosophy is interpretivist (Galliers 1991, 119). The interpretivist approach is also preferred for the qualitative data. It involves the use of human interests in the research process. From Myers (2009, 89), it is noted that the interpretive research makes an assumption that reality is either given or social constructed.



The social construction aspect comprises of the language, consciousness, and instruments. The critique of the positivist approach led to the development of interpretivist approach that is used in research activities that involves the qualitative study.

The research conducted by Collins (2010) added that interpretivist is also associated with the epistemological position of the idealism that groups together various approaches that are regarded as social constructionism, hermeneutics and also phenomenological. These approaches are considered to focus on the challenges that are cited in an objectivist approach (Collins, 2010).

In addition, the research on interpretivist indicates that it focus more on the meaning that is evaluated through multiple methods so as to reflect on various issues arising in the research process. Through an interpretivist approach, a researcher is able to present high validity data on the optimization of freight procurement presenting the issue associated with the diverse views and perception about the optimization of freight procurement.

In the current research, both inductive and deductive approaches will be used on the issues relating to optimization of freight procurement. The qualitative data will be analyzed inductively using the interpretivist approach in the research process.

#### **4.3. Overview of Research Methods**

Due to the scope of research required in this study, it is important to ensure that the in-depth and detailed analysis is conducted to evaluate the optimization of freight procurement.

The research method that will be used in this study is case study analysis that applies qualitative studies. Qualitative research is important in situation where detailed analysis is required for the collection of both in-depth and detailed research. It will

help in gathering the required data from a wide range of sources that will help in the analysis and discussion.

In addition, the research will discuss the findings of the research in line with the existing theories linking the research to relevant theories since the research has an academic goal to meet in linking the theoretical frameworks with the empirical findings.

#### **4.4. Case Study Approach**

According to Stake (1995, 17), case study method is defined as an investigation that present an analysis on a single or collective cases that is intended to capturing the complex nature of the research area. It helps in identifying the detailed information about the performance of the aspect being investigated in a natural setting.

Case study research method is more popular among qualitative researchers as compared to quantitative studies. It is based on the in-depth analysis of a phenomena in its natural state taking into account the challenges and proposes that influence its success in the study region (Thomas 2011, 105). Case study approach helps in the acquisition of data about a phenomena by considering its interaction with the environment that is being studied. According to Merriam (2009), case study research is viewed as a '*particularistic, descriptive and heuristic*' (p. 46).

There are various scholars who have facilitated in the development of the case study method as used in a qualitative studies (Creswell, 2013; Denzin; Lincoln, 2011; Merriam, 2009; Yin, 2009). For effectiveness of the case study method, it is important to identify cases that are published in order to build confidence of the source of data being investigated in the case.

Many qualitative research identify the case study approach as an effective method of data collection (Denzin & Lincoln, 2011; Yin, 2009; Tight, 2010). However, for

accuracy, reliability and generalizability of the study, research normally use case study design in line with other methods of data collection and analysis (Tight 2010, 56). It presents high flexibility in the study by offering various approaches that the researcher can take to suit the research question (Tight 2010, 56).

#### **4.5. Qualitative Research Method**

Qualitative research is important in this study will present an in-depth analysis on the optimization of freight procurement. According to Abawi (2008, 36), qualitative research is conducted in a way that it presents a holistic image of theoretical framework that is focused to the current study.

In addition, Mora (2010, 20) found that qualitative method is found to be exploratory where it is applied in cases where the research does not know the possible results of the study. This proves that the qualitative method is used in cases where deeper truth is being investigated about a concept.

As opposed to quantitative research, many of qualitative researchers experiences a confusion that there is a possibility of multiple truths in the research area (Meyer 2001, 200). In most cases, the qualitative research is conducted when the researcher has less information about the possible outcome of the research (Neils 2007, 9).

In the design of the research, it is found to occur in the process of conducting the current study. It is crucial identifying that qualitative study requires a complex data analysis method in order to achieve the research objectives. It would be difficult to construct an appropriate questionnaire due to possibility of multiple realities existing. For this reason, in-depth interviews are considered crucial in such research to achieve detailed data regarding the research area (Mora 2010, 67-69.). In most cases, the researcher becomes the instrument in the research for the collection of data for the study (Neils 2007, 19).

The most common methods of data collection in the qualitative research include focus groups, ethnography, observation and in-depth interviews (Mora 2010, 61). For specific case being investigated in this research, it is important for the researcher to use the in-depth interviews to collect the research data. The objective of this research is to investigate the optimization of freight procurement.

#### **4.6. Participants Sampling Method**

The stratified method of sampling is used in the respondents' selection for the research. The stratified method is featured by the researcher's intention to get a respondent from each subgroup in the set of participants (Bulmer 2004, 91.). In such a case, the study intends to have a representative of the population as the sample for this study.

The population will comprise of employees of Jomo Kenyatta International Airport who will provide crucial data on their perception, views and comments on the optimization of freight procurement.

The research will use the interviews is collecting in-depth research on optimization of freight procurement. The interviews will be 15 where the research will collect the interview data from 15 interviewees who will be from the JKIA. The interviews will be conducted where the data collected from the interviews will be analyzed qualitatively.

#### **4.7. Secondary research**

The secondary data comprises of the data that is collected from academic writings like books, magazines, government records and private company records. In addition,

other sources such as multimedia files like the videos and recordings could be used in the research process to promote effectiveness in the research process.

Stewart & Kamins (1993) conducted a study that investigated on the validity of secondary research in the research process where they found that the secondary data increases the richness in the research being conducted by bringing the issue of diversity. Stewart (1993, 32) added that the secondary data is crucial in building the framework for the current research by evaluating the previous research findings.

Secondary research has a number of advantages when integrated in the research process. It is found to be economical and consumes less time due to its availability in the research process in comparison with the primary research (Bulmer 2005 113-114).

Unlike the primary study, the researchers who utilizes the secondary research process has data that is ready since it can be acquired from the publications that was conducted by other researchers. However, the advantages stated could be a challenge since it may compromise the accuracy of the research in case where the secondary data gets outdated (Robson 2012, 98). In other cases, the secondary data may present inaccurate results since the previous research maybe faulty as it did not address the similar aspects as the current research required.

#### **4.8. Ethical Issues in Research**

While conducting primary research, ethical issues arise that should be addressed in the research process (El-Khani, Ulph, Redmond & Calam 2013, 21). During the process of undertaking primary research, it is important to seek the consent of the respondents or the participants (James & Busher 2015, 130).

The consent form should be signed to ascertain that the participants in the primary research were willing to undertake the given research (Abed 2014, 72). Their consent assures that they agreed to participate in the research voluntarily. The second issue

that should be addressed in a primary research is the confirmation to the participants that the data they present to the researcher can only be used for research purposes only (James & Busher 2015, 52.). That means that the data is not to be disclosed to other avenues.

Protecting the identity or privacy of the data is crucial in the research process to ensure that it presents the actual findings in the research process. There are numerous ethical principles that are designed for social and medical studies crucial for researchers (James & Busher 2015, 79-81.). These guidelines are aimed at protecting the rights and privacy of their participants in the research. Closely related to the voluntary participation is the other guideline that requires the informed consent.

It is an essential ethical consideration that requires the researcher to fully inform the respondents concerning the risks that is associated with the research where the participants are supposed to give their consent after being informed of the research process (Campbell & Groundwater-Smith 2007, 190). Burgess (2005, 17) added that the other principle that should be embraced in the research regards anonymity where it is applied even to researchers. It is a significant guarantee of privacy in research, but challenging to implement it in research process.

#### **4.9. Data Analysis**

The data will be presented to simple forms such as percentages that help in the analysis and discussion of the results (Ritchie, Lewis, Nicholls & Ormston 2013, 90). There are two forms of qualitative data that comes from the case studies and interviews.

The qualitative data is crucial in this research as they present a holistic view of the concepts being investigated in the study. The data analysis will help in drawing patterns that will facilitate in drawing conclusions from the research being investigated (Grbich 2012, 60.). For the purposes of this research, in-depth analysis is

crucial for qualitative data. In-depth analysis of data will guide the research in drawing the patterns in the research process (Silverman 2013,30).

It is through the in-depth analysis of this type of data that will allow the researcher to evaluate deep analysis and consideration of the research topic that is investigated in the current research. This will be guided by the research questions that determines the various dimensions of the study in terms the specific requirements for this study.

## 5 RESULTS AND ANALYSIS

### 5.1. Introduction

This chapter presents the findings and analysis of the study. Notably, the research focused on the analysis of the measures to optimize the performance of freight procurement at Jomo Kenyatta International Airport.

Based on the objectives covered in chapter 1, this chapter presents the findings of the study in a manner organized into different sections. Specifically, the chapter starts by presenting optimization of freight procurement at Jomo Kenyatta International Airport based on a number of elements, as per the questions in the interview.

To this end, the chapter first presents the demographic information of the participants, followed by data presentation and analysis in a stepwise fashion as per the objectives.

### 5.2. Demographic Information

As noted in the methodology section, the primary data was gathered from 10 employees working in the procurement department at Jomo Kenyatta International Airport. On the employees' gender, the male participants were 53.3% and female participants were 46.7%.

**Table 2. Interviewee's gender**

<b>Gender</b>	<b>Percentage</b>
Male	53.3%
Female	46.7%
<b>Total</b>	<b>100%</b>

This showed that majority of those interviewed were male making the largest portion of the interviews (53.3%).

**Table 3. Participant's age**

<b>Age group (years)</b>	<b>Percentage</b>
25-34	20%
35-44	33.3%
45-50	40%
Over 50	6.7%

Majority of the employees at JKIA were found to be between the ages of 45-50 years old who formed 40% of the total sample interviewed.



**Table 4. Employee's level of education**

Level of education	Percentage
College (Diploma level)	20%
University (Undergraduate)	46.7%
University (Masters)	20%
Doctor of Philosophy	13.3%

Majority of the sample interviewed had tertiary qualification. This was revealed when the research found that 80% of the respondent had a tertiary qualification in their education status.

### **5.3. Current State in JKIA Procurement Process**

The public procurement process requires critical considerations of the accountability and transparency to ensure that the performance of the industry is promoted.

One senior individual in the management at Kenya Airports Authority noted that Jomo Kenyatta International Airport has received much attention due to increasing number of visitors. The participant in the interview noted, *“over the past five years, expansion and rehabilitation of the existing structure is crucial to support the intended growth since the airport has been receiving increasing number of visitors facilitated by increased trade between the East African countries and creation of more markets in the region taking into account it is the major airport in East and Central Africa region.”*

Another respondent noted that the current expansion program at JKIA is expected to increase the freight number hence requiring the procurement of more aircraft. The participant noted that, *“considering the high growth experienced in the region and increased cases of corruption in the public procurement, there is need to restructure*

*the procurement process to improve on aspects of accountability and transparency. Through such measures, the airport can improve on its performance and operations.”*

From this participant, one can identify that the procurement process has flaws that prevent effective operation and performance. Another crucial consideration is the sealing of loopholes in the procurement process.

Another participant claimed that, *“procurement process is the most costly and crucial practice in the airport, it determines the success of other departments. Therefore, I think the challenges that JKIA has reported is due to issues in the procurement process.”*

The other requirement that is crucial to the airport is the fire that destroyed crucial structures in the airport. A participant noted that, *“the fire that destroyed some structures in the airport on 7<sup>th</sup> August, 2013 that damaged the arrival structures and other crucial facilities attracted the attention of the Kenya Ports Authority and other bodies such as the EU Delegation and EGIS consultant firm in the assessment of needs to resume with the safe and efficient operations that required intervention.”*

From this participant, it is seen that procurement is part of the JKIA operations determining its performance and operations.

**Figure 2. The fire at JKIA 2013**



Procurement process should be optimized in the airport to equip the airport with modern devices for fire safety and disaster response. Through such measures, the airport can sustainably use and reduce the cost of running the airport by reducing the risks associated with its operations.

In consideration of the crucial changes that the airport is in need, another respondent was keen to address the concept of corruption in the procurement process as the major setback in achieving the strategic goals and measures to improve its operations.

The participant noted that, *“I am always demotivated when I see loopholes for corruption in the procurement process, we push for the implementation of corruption free procurement process in vain. However, with the current intervention by both the private and public entities in the fight against corruption, there are numerous changes that will improve accountability in the procurement process. Procurement ethics is the challenge that is being addressed to improve service delivery and operations.”*

This is a demonstration that the streamlining of the structures in the JKIA will help in improving the state of procurement process.

#### **5.4. Addressing the Challenges to Optimize Performance**

Efficiency is considered a crucial consideration by considering the effectiveness in performance. From this approach, efficiency ensures economical use of the resources b considering the preferences and most effective operations.

One participant noted that, *I am sure that the main challenge of JKIA in terms of procurement is efficiency of the equipment and their performance in the operations. If JKIA management employees the supply chain management practices that reduce wastages.*

Wastages and inefficiencies could be addressed through consideration of an effective procurement process that integrates performance, capability and enhancement of the modern security and safety of the customers.

In addition, it was noted that, procurement process should also promote timely delivery and supply of the ordered equipment and aircrafts. In most cases, a participant noted, *“that delay in delivery and procurement process is a major hindrance to promoting effective performance and operation of JKIA.”* Another participant added that *“lateness and delays has been a challenge for the airport in terms of meeting the needs of its clients.”*

From the above analysis, the interviewees agreed unanimously that poor performance and operation enhancement has been resulted by the delay in service delivery, slow procurement process and other barriers related to transparency and accountability in the entire process.

In consideration with the crucial changes that the JKIA projects entails in the expansion of the airport, freight procurement is very central to its performance and achievements.

Kenya Airport’s authority has consistently worked out measures that would improve service delivery as well as meeting the needs of its consumers. The process of completing the terminal 4 and its opening in 2015 was new development that will promote effective performance and meeting customers and clients’ needs as required in the procurement process.

A participant noted that, *“development of an effective procurement procedure that is transparent should be embraced to facilitate in reducing the bureaucratic procedures that does not favor majority of the flight procurement services.”*

Assessment of the current model being used in the airport today exposes threats in its competitiveness with other ports in the region. It is essentially important to ensure that the challenges in freight procurement at JKIA is effectively addressed reducing any form of inefficiencies in its operations and performance.

From the secondary sources, there were a number of findings that could also be integrated in the current research. One main concern was the expansion strategy in promoting the customers' volume that the airport can handle. With the number of visitors using the airport increasing sustainably, there is need to increase the freight fleet and capacity of the airport in order to hold a higher number of customers. The KAA management claimed that, *it is expected that the Interim Terminal will be finalized between 2015 and 2019, the new Terminal Unit 4 is scheduled for partial completion by mid-2014 and full completion by March 2015. Package 3, if pursued, is expected to be completed by 2022-2024; while the Greenfield Terminal, the current priority, should be completed by October 2017.*"

**Figure 3. Green field terminal at JKIA**



From these approaches, the performance and operations in the airport is expected to experience high growth resulting to better performance and optimization of its operations.

### 5.5. Effectiveness in Freight Procurement at JKIA

Lack of an effective freight procurement process for the airlines has not been able to meet its obligation in terms of performance and operation. The hindrance may occur due to poor accountability in the reporting.

One of the participant who is an accountant by profession claims that poor reporting structures and financial strategies has been a major setback in the JKIA performance. It is important to note that the accountant claimed that, *“lack of manpower, experience and competency in the teams conducting the freight procurement results to legal issues arising in the procurement process leading to delays in the freight procurement.”*

For such reasons, it is important to ensure that the teams conducting the procurement processes for the JKIA are competent and experienced to ensure that an effective procurement procedures are adhered to promote effectiveness and efficiency.

In addition, the airport management should incorporate measures to ensure that the expanded terminals receives high volume of clients to achieve its strategic goals. This can be enhanced through improvement in customer service a measure that is embraced to improve on the level of satisfaction and loyalty.

One of the interviewed participant noted that, *“I normally find it important to ensure that the expansion of the airport to hold higher volume of customers is accompanied by improvement in quality of service as a way to increase the competitiveness.”*

Another interviewee noted with concern that, *“development of the lean Six Sigma approach in the operations will help improve the performance and efficiency in the airport.”*

It is important to ensure that the development of a positive procurement process is embraced to sustain development in the airport.

Numerous apparatuses and strategies that can be connected to Six Sigma undertakings are accessible both in the writing and open space. Albeit the majority of these

instruments are now surely understood and connected in different settings, Six Sigma gives a client engaged, all around characterized technique upheld by an unmistakable arrangement of extensive apparatuses for procedure change (van Iwaarden et al 2008, 100.). This likewise implies Six Sigma might be seen as a blend of existing devices and strategies accessible well before firms built up this methodology (van Iwaarden et al 2008, 171.).

Devices are likewise accessible in different structures, for example, models, investigation formats and strategies (de Koning and de Mast 2006 ,54) and it is this abundance of procedures that confuses the procedure, making the need of a vigorous arrangement of what are vital change devices to be utilized inside the cargo acquisition handle more self-evident (Brady and Allen 2006, 119).

One critical angle to consider while setting out any Six Sigma venture is that apparatuses will need to adjust and create as the task develops. Frequently, basic instruments are sufficient to lessen the deformities of a mind boggling obtainment framework in the underlying stages (Raja 2006, 60.).

Despite the fact that instruments and methods fluctuate, it is crucial to apply the right device in the right circumstance keeping in mind the end goal to accomplish effective results. This maybe legitimizes why it is a typical practice in the writing to inventory the fundamental instruments inside the five periods of the improvement of the cargo acquirement.

Nonetheless, there is a nonattendance of institutionalized choice techniques to pick the most proper devices in a particular connection. In like manner, as set forward by Brady and Allen (2006, 5.), discovering writing that gives strategies to particular ventures and the related monetary results is regularly troublesome due to the responsibility reasons.

Throughout the years, organizations have incorporated various apparatuses into the Six Sigma way to deal with make them more compelling and to kill conceivable crevices after its application. Such toolsets incorporate factual and scientific devices both from modern designing and operations research fields (Bunce et al 2008, 16). In

this occurrence, these apparatuses enhance the down to earth and mechanical methodology with a more grounded hypothetical premise to accomplish a superior gear and assets use (Maciel Junior et al 2005, 71).

Most importers at Jomo Kenyatta International Airport (JKIA) are able to clear their goods within 2-3 days. A major factor contributing to this scenario is the automation of customs procedures that allow for faster document processing and preclearance that has been associated with timely procurement of the freight. Inspections and security screening still pay a major role in the delays at the airport (Gonzalez, Guasch, and Serebriskz 2007, 91).

Increased competition from cargo handling facilities for airline customers has also contributed to faster ramp and ground operations leading to faster document and cargo handling in all transit sheds at JKIA. The cargo dwell times for exports has the same trend since most of the cargo airfreighted from JKIA are perishables (Hoang 2002, 36.).

A lot of prior planning is done for this type of freight due to its sensitivity, not to mention that most of the shippers contract cargo capacity to major EU destinations. JKIA plays a role of being a transit-hub for most cargoes destined to the EAC region and beyond.

Most of the exports that face over 5 days dwell -times fall in this category. A factor responsible for this is also failure for freight forwarders to track and trace inbound-transit shipments and that most dry-cargo are booked on free-sale capacity-basis by majority airlines.



## 6 CONCLUSION AND DISCUSSION

### 6.1. Conclusion

Trade logistics facilitate trade through actively determining the success of a procurement process for the airport. Quality logistics administrations assume an imperative part in encouraging the transportation of global exchange products: wasteful logistics administrations obstruct exchange by forcing an additional expense regarding time and cash (Pedersen 2000, 203-205).

Top notch logistics administrations enhance the aggressiveness of a nation's fares by diminishing the cost included in transporting merchandise – particularly for nations that are impeded by being landlocked and a long way from significant markets (Rohr and Correa 1998, 29.).

The government of Kenya has been working on various trade facilitation projects across the region with the aim of enhancing competitiveness in trade logistics through improvement of the procurement practices in the JKIA. Although not entirely exhaustive, below are some of the initiatives.

Inspection of goods in Kenya has improved and this can be attributed to heightened security alerts in all entry points into the country for both passengers and goods, to avert incidence of terrorism.

Quality of transport and ICT infrastructure has improved in Uganda whilst incidences of corruption and rent seeking activities seem to also be slowing down (Demeter 2013, 33.). In Rwanda, timely delivery of shipments is perceived to have slowed down, while communication of trade related information has tremendously improved.

Kenya showed an improvement in various indicators. There has been no improvement in the timely delivery of shipments, whilst handling of complaints and trade disputes seems to have had the greatest improvement (Slack 1998, 66).

Rent-seeking behavior and corrupt activities e.g. soliciting for bribes is more rampant in Kenya. Although the quantification of the monetary values exchanged as bribes at points highlighted in the logistics chain is not given, it has to be noted also that transporters, shippers, importers and exporters alike play a major role in the escalation of the vice (Woudsma 1999. 104.).

Non-compliance with set regulations for example, is a key reason for engaging in such activities. Rwanda exudes higher business ethics, with only one stale point with reference to incidences of rent-seeking/corrupt practices (along highways), whilst respondents in Burundi point at ports and airports as the areas prone to such incidences.

## **6.2. Recommendations**

The Kenya Airports Authority (KAA) is currently constructing a second runway at JKIA, Nairobi (Ferrantino, Geiger & Tsigas, 2013). According to the Kenya Civil Aviation Authority (KCAA), this will increase take-off and landing slot for the airlines, thereby shortening aircraft turnaround times.

Each of the economies in East African nations may not do much to lessen certain costs -, for example, worldwide airfreight and sea cargo costs, which make up a substantial part of the last cost of both imports and fares (Arvis.et al 2012, 71.).

In spite of this, strategies can bring down the expenses of provincial and residential circulation by boosting general logistics execution and by enhancing the exchange environment. After the 2015-LPS review the accompanying proposals have been recommended in view of few stale-focuses and viewpoints in the territorial supply chains deserving of change.

To enhance competitiveness in the regional development through the JKIA, Kenyan government should exercise strict measures that reduces corruption cases in the procurement process.

This can be achieved through formulation of a transparent and accountable framework that will not only improve the performance, but will also encourage more firms with more effective services and products to bid (Boeing Commercial Airplanes 2002, 23.).

Another approach that is crucial is through the integration of competent team that is capable of strategizing on measures that will address the procurement challenges cited (Droge, Jayaram and Vickery 2004, 65.). This should be accompanied by an effective management framework that integrates an interdisciplinary team in the formulation of the procurement process for the airport.

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